CHAPTER 18: SC CONTROLLER SECTION

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1. SPECIFICATIONS

1-1. Specification

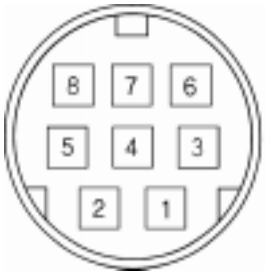
Item	
Host Compatibility	IBM compatible, Macintosh(*1) compatible
Operating Systems	Mac OS7.5, Mac OS7.6, Mac OS8.0, Mac OS8.1, Mac OS8.5, Windows3.1, Windows95/98, Windows NT4.0
Interface Ports	Parallel (IEEE1284B receptacle), Serial (RS-422)
Protocol	IEEE1284 Compatible, RS-422
Autoswitching	Printing port and protocol
Printer Languages	RisoRinc
Interface Unit Type	Built-In type (Inside of FR3950α)
RAM	8MB standard and one free slot (Max. 40MB with optional RAM)
Power Requirements	100 to 240VAC, 50/60Hz (Depending on the Risograph Model)
Power Consumption	20W
Operation Temperature	41F to 104F(5C to 40C)
Operation Humidity	40% to 70%(No dew condensation)
Resolution	Input: 400 dpi/ Output: 400dpi
Control Button	START, STOP and FUNCTION, UP and DOWN Buttons (5 buttons)
Indicator	Three LED's and a LCD for SC Controller
Margin Assignment	Top/bottom and left/right : 3mm(0.118 inch) or greater Check
Paper Size Range	Max. 297 x 432mm or 11.693 x 17.008 inch Min. 10 x 10mm or 0.394 x 0.394 inch

*1 - Can not connect with newer Mac Hardware such as iMac nor new G3 Macintosh which does not have RS-422 Serial Port.

1-2. Port Specification

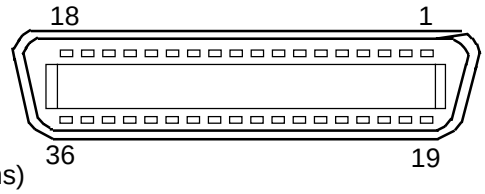
A. Host (SERIAL) connector

- MAC (SERIAL)
  - Mac printer cable system : 57.6Kbps
  - LocalTalk cable system : 230.4Kbps
- Input/Output Specifications
  - Input : RS-422 receiver or equivalent
  - Output : RS-422 driver or equivalent
- Pin Configuration
  - See on the right figure



NOTE : Timing and other details are not published

B. Host (PARALLEL) connector
- Pin Configuration



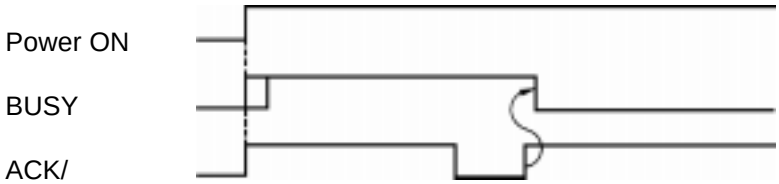
- Interface signals (Centronics interface specifications)

Pin No.	Signal	Source	Function
1	DATASTROBE/	H	Data read synchronizing signal. When this signal is LOW, the FR3950α SC Controller takes in data.
2	DATA1	Bi-Di	Represents data bit 1.
3	DATA2	Bi-Di	Represents data bit 2.
4	DATA3	Bi-Di	Represents data bit 3.
5	DATA4	Bi-Di	Represents data bit 4.
6	DATA5	Bi-Di	Represents data bit 5.
7	DATA6	Bi-Di	Represents data bit 6.
8	DATA7	Bi-Di	Represents data bit 7.
9	DATA8	Bi-Di	Represents data bit 8.
10	ACK/	P	Indicates that all data have been acknowledged when LOW.
11	BUSY	P	Indicates that the SC Controller is busy and cannot receive data when HIGH.
12	PE	P	Indicates the absence of paper in the printer when HIGH.
13	SELECT	P	Indicates whether the SC Controller is selected or not.
14	AF	H	Reserved for future expansion.
15	NC*		Underfined or reserved for future expansion.
16	GND		Signal ground
17	FG		Frame ground
18	5V	P	+5V power supplied from the SC Controller through a 4.2k1/2 resistor.
19	GND		nStrobe signal ground
20	GND		Data 1 signal ground
21	GND		Data 2 signal ground
22	GND		Data 3 signal ground
23	GND		Data 4 signal ground
24	GND		Data 5 signal ground
25	GND		Data 6 signal ground
26	GND		Data 7 signal ground
27	GND		Data 8 signal ground
28	GND		nAck signal ground
29	GND		Busy signal ground
30	GND		pError signal ground
31	INPUT PRIME/	H	Restores the SC Controller into the initial status (compatibility mode) when HIGH.
32	FAULT/	P	Notifies the presence or absence of an error in the SC Controller to the external device(host).
33	NC*		Underfined or reserved for future expansion.
34	NC*		Underfined or reserved for future expansion.
35	NC*		Underfined or reserved for future expansion.
36	SELECT IN/	H	Used by the external device (host) to select the SC Controller. When this signal is LOW, the SC Controller is selected.

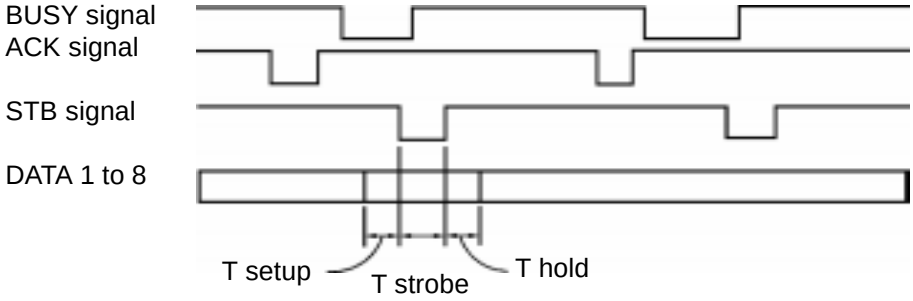
NC* stands for no connection
H stands for Host and P means the SC Controller

- Timing Charts

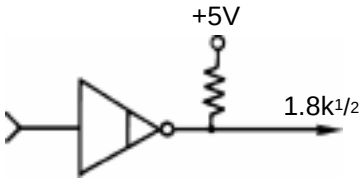
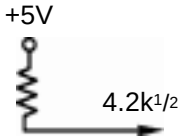
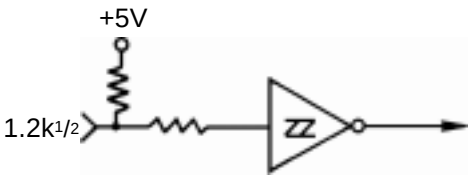
When the power is turned on;



When data is received;



- Electrical Characteristics

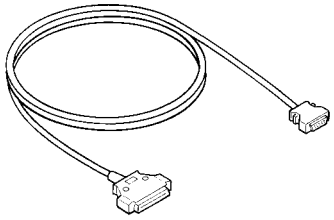
Signal	Circuit	Remarks
nAck Busy pError Select nFault		-Open collector LS06 or equivalent -IEEE 1284 level 1 or equivalent
Peripheral Logic Hight		Connected to the +5V source within the SC Contoller through a 4.2k1/2 resistor
nStrobe Data 1 to 8 nInt nAutoFd nSelection		-Schmidt buffer LS14 or equivalent -IEEE 1284 level 1 or equivalent (input capacity varies)

2. INSTALLATION

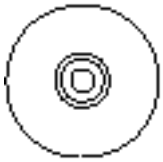
2-1. Checking Package Contents

Check that your FR3950α package contains the items mentioned below.

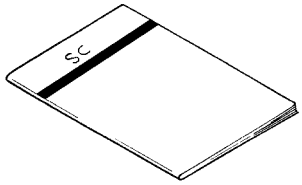
- SC II Cable (10m) 1pce
- Local Interface User`s Guide 1copy
- CD-ROM (Printer Drivers & Utilities) 1pce



SCII Cable



CD-ROM



Local Interface User`s Guide

2-2. Computer Systems Requirements

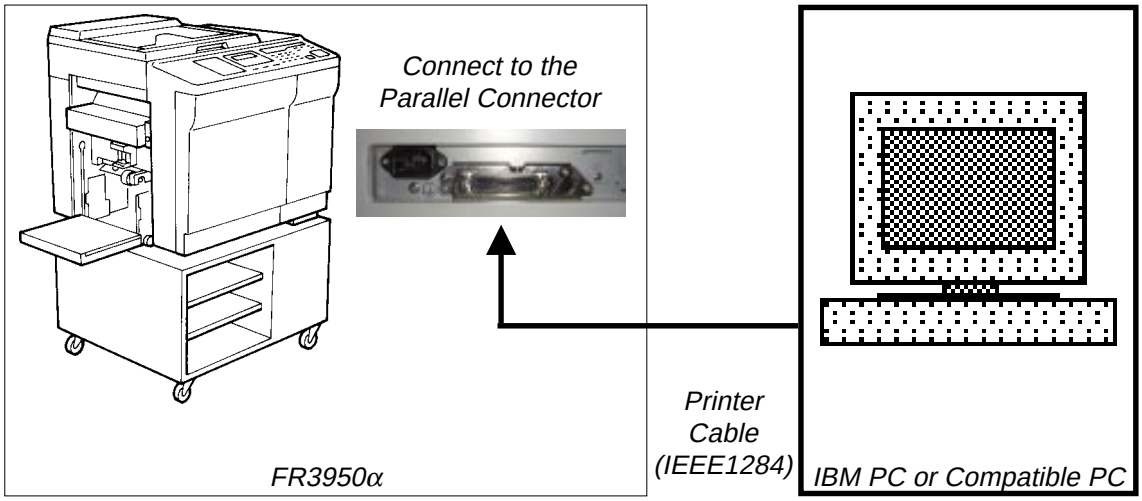
- Windows Platform
  - IBM PC or compatible
    - > Centronics or IEEE 1284 parallel port
    - > CD-ROM Drive for the software installation
    - > Windows 3.1 or Windows 95/98 or Windows NT4.0 installed

- Macintosh Platform
  - Apple Macintosh
    - > CD-ROM Drive for the software installation
    - > Hard disk with minimum 256kB free space for the softwares
    - > Minimum 12MB installed memory (Main Memory)
    - > Minimum 60MB memory available with installed memory (Main Memory) and extended (Virtual) memory
    - > Mac OS above System 7.5X under System 8.5 installed
    - > QuickDraw installed and enabled
  - Apple Power Macintosh
    - > CD-ROM Drive for the software installation
    - > Hard disk with minimum 256kB free space for the softwares
    - > Minimum 16MB installed memory (Main Memory)
    - > Minimum 60MB memory available with installed memory (Main Memory) and extended (Virtual) memory
    - > Mac OS above System 7.5X under System 8.5 installed
    - > QuickDraw installed and enabled

2-3. Connecting the cables

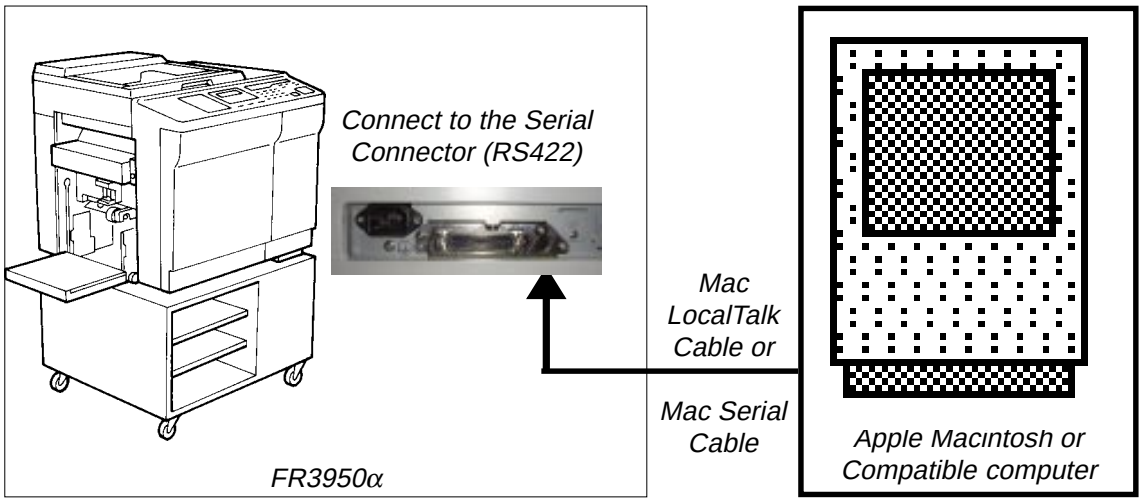
Connect the cables of the FR3950α properly while refering to the figure shown below. Be sure to turn off the Personal Computer and FR3950α when connecting cables.

- With IBM PC or Compatible PC



[NOTE]
Purchase a commercially available printer cable for connecting between the FR3950α and the personal computer.

- With Apple Macintosh or Compatible computer



[NOTE]
Purchase a commercially available Mac serial cable or LocalTalk cable for connecting between the FR3950α and the personal computer.
If the printer port on the Macintosh is already occupied with the LocalTalk cable, use the LocalTalk network for cable connection or connect the Mac serial cable to the modem port.

2-4. Expanding Memory Volume

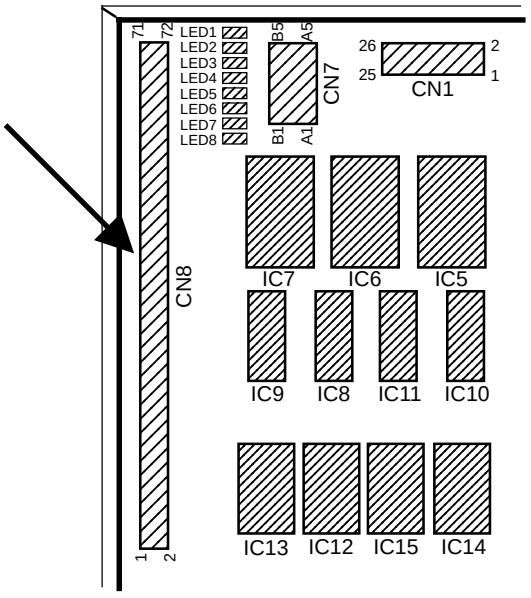
Purpose of Expanding Memory Volume

1. To increase the page data volume.
2. To achieve optional “Remote Mode” function. (Information will be available separately in the future by Technical Bulletin)

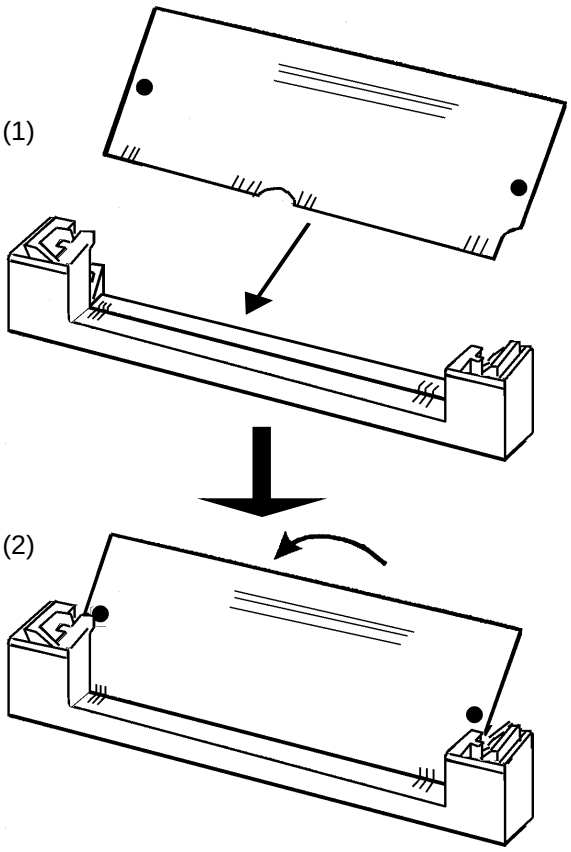
8MB RAM is installed as standard on the SC Main PCB in the FR3950α.
This memory space is used for developing the print data transmitted from the personal computer into page data.
This standard 8MB memory is enough memory to develope two A3-size documents in 400dpi resolution.
This memory volume can be expanded up to 40MB by installing an optional RAM (32MB) on the SC Main PCB in order to achieve the above purpose.

How to install the Optional RAM

1. Turn off the power on the FR3950α and SC Contoroller, then unplug the power code. If the FR3950α is already connected to other equipment, remove all connected cables.
2. Ground yourself and remove the Front Left Cover from the FR3950α to expose the SC Main PCB (Please refer “Disassemble and Re-Assembly 6-1” for the detail).
3. Install the Optional RAM (32MB) into CN8 socket on the SC Main PCB.
   (1) Hold it at about 60 degree angle against its socket and press its edge connector firmly into the slot running through the center of the socket.
   (2) Then pivot the RAM up. You will hear a click as the plastic tabs at each end of the socket snap into place around the RAM and then the small plastic projection snap into the holes at each of the RAM.



SC Main PCB



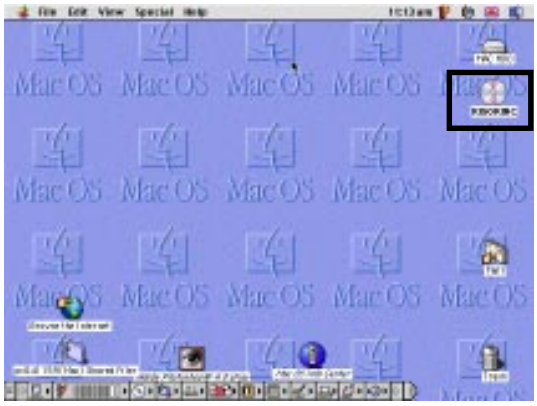
3. INSTALLATION (SOFTWARE-DRIVERS)

3-1. Macintosh (OS 8.1)

(A) Turn on the Macintosh computer and start Mac OS.

(B) Insert driver CD-ROM in the Macintosh.
"**RISORINC**" icon appears on the screen.

(C) Double-click on "**RISORINC**" icon.



(MacOS8 inst1)

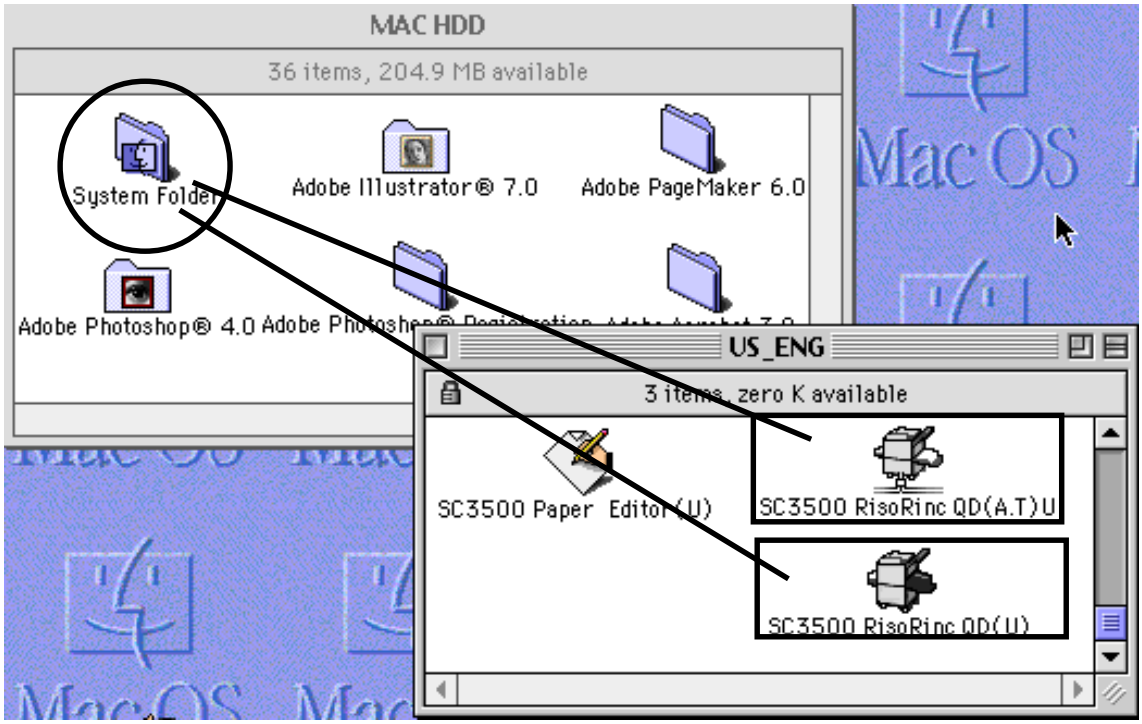
(D) "**RISORINC**" appears on the display.
To install US English version, double click on "**US_ENG**" icon.

(MacOS8 inst2)

(E) "**US_ENG**" appears on the display.

(MacOS8 inst3)

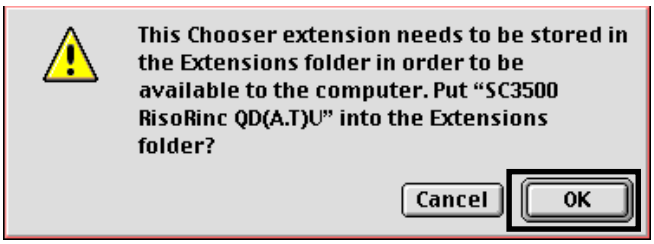
(F) Drug **[SC3500 RisoRinc QD(A.T)U]** icon or **[SC3500 RisoRinc QD(U)]** icon and drop this icon on **[System Folder]**icon in the MAC HDD.



(MacOS8 inst4)

Note : If you want to connect Macintosh with FR3950α by using,
Serial Cable - Copy **[SC3500 RisoRinc QD(U)]** icon to System Folder.
LocalTalk Cable - Copy **[SC3500 RisoRinc QD(A.T)U]** icon to System Folder.

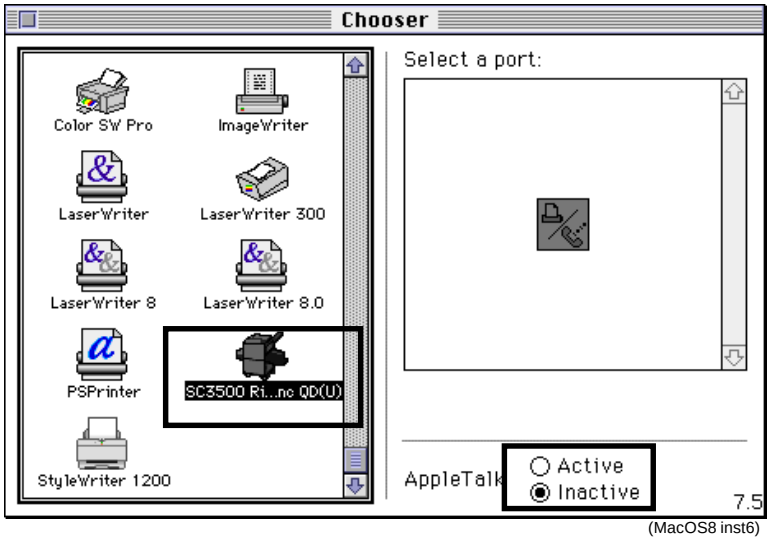
(G) Following dialog box appears on the display. Click on the **[OK]** button.


This Chooser extension needs to be stored in the Extensions folder in order to be available to the computer. Put "SC3500 RisoRinc QD(A.T)U" into the Extensions folder?
Cancel
OK

(MacOS8 inst5)

(H-1) **- Serial Cable connection -**

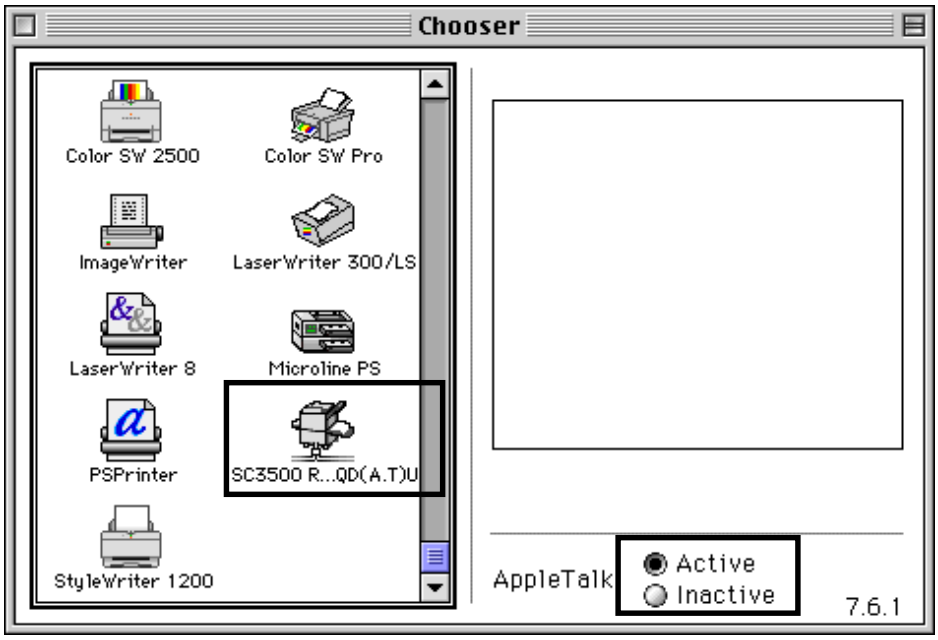
Select **[Chooser]** from the **[Apple]** menu. The **[Chooser]** dialog box then appears. Select AppleTalk section to "Inactive", then click on **[SC3500 Ri...nc QD(U)]** icon to finish installation.



(MacOS8 inst6)

(H-2) **- LocalTalk Cable connection -**

Select **[Chooser]** from the **[Apple]** menu. The **[Chooser]** dialog box then appears. Select AppleTalk section to "Active", then click on **[SC3500 R...QD(A.T)U]** icon to finish installation.



(MacOS8 inst7)

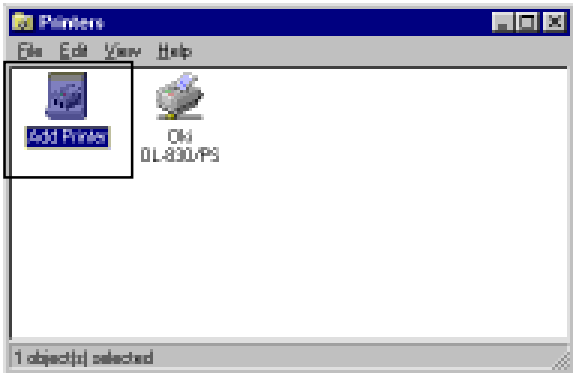
3-2. Windows95/98

(A) Turn on the personal computer and start Windows 95/98.
Insert the software CD-ROM in the CD-ROM drive.

(B) Open the **[My Computer]**.

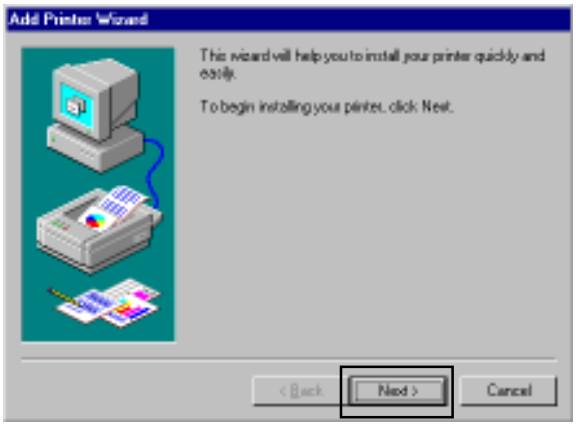
(C) Double-click on the **[Printers]** icon.
[Printers] dialog box appears on the display.

(D) Double-click on the **[Add Printer]** icon.

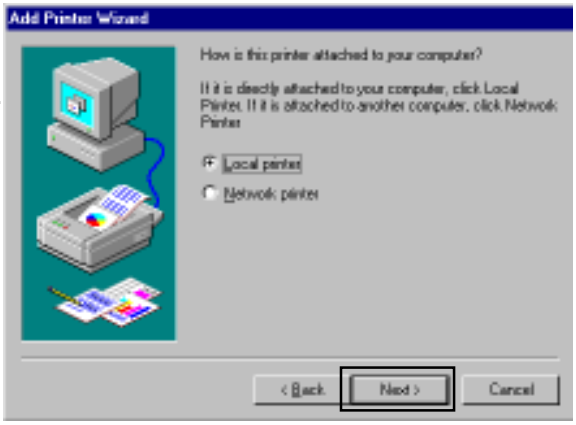


(FRSC95 inst01)

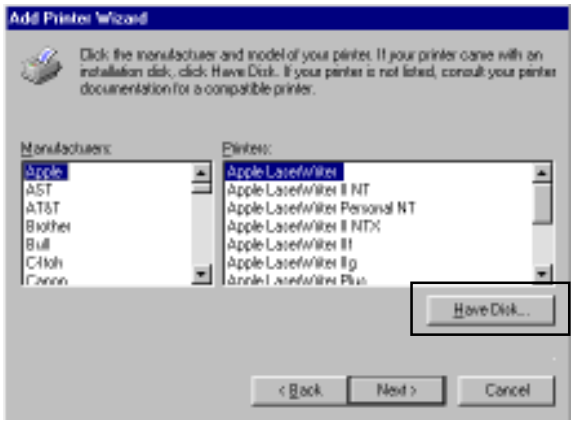
(E) **[Add Printer Wizard]** dialog box appears on the display.
Click on the **[Next]** button.


Add Printer Wizard
This wizard will help you to install your printer quickly and easily.
To begin installing your printer, click Next.
< Back
Next >
Cancel
(FRSC95 inst02)

(F) Click on the **[Next]** button.
If you need to install the printer as Network printer, change mark in Network printer box.

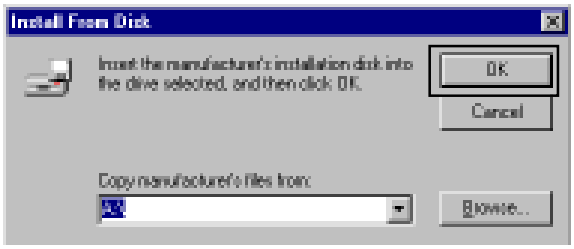

Add Printer Wizard
How is this printer attached to your computer?
If it is directly attached to your computer, click Local Printer. If it is attached to another computer, click Network Printer.
Local printer
Network printer
< Back
Next >
Cancel
(FRSC95 inst03)

(G) Click on the **[Have Disk...]** button.



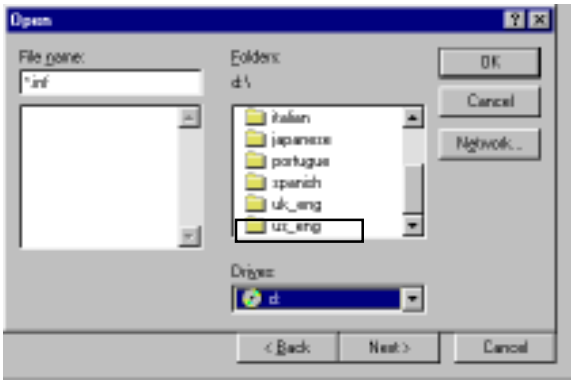
(FRSC95 inst04)

(H) Click on the **[OK]** button.



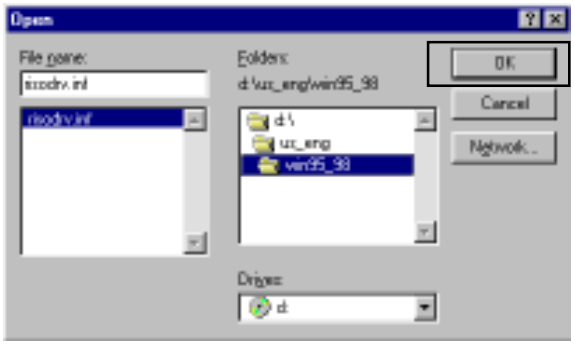
(FRSC95 inst05)

(I) **[Open]** dialog box appears on the display.
Double click on the **[us_eng]** folder.



(FRSC95 inst06)

(J) Click on the **[OK]** button.

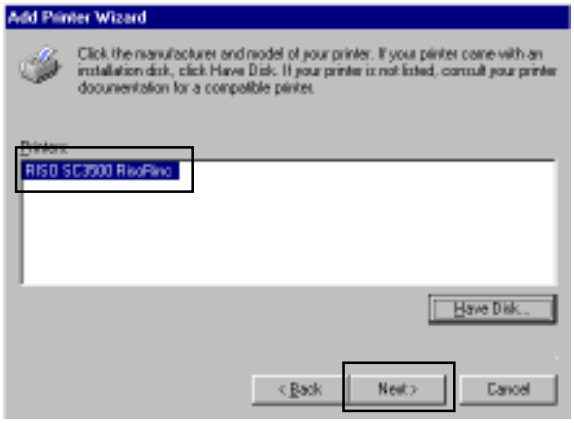


(FRSC95 inst07)

(K) Click on the **[OK]** button.

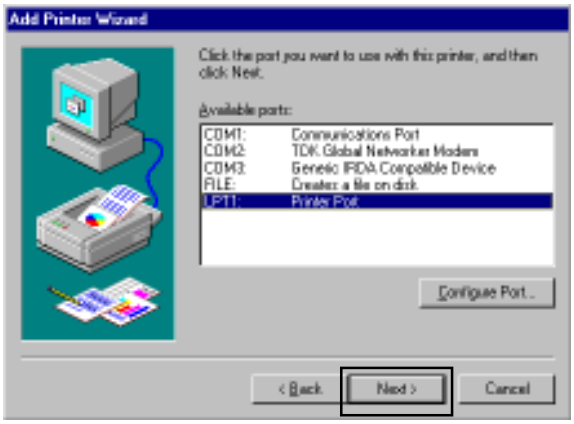
(FRSC95 inst08)

(L) **[RISO SC3500 RisoRinc]** appears in the Printers column.
Then click on the **[Next]** button.


Add Printer Wizard
Click the manufacturer and model of your printer. If your printer came with an installation disk, click Have Disk. If your printer is not listed, consult your printer documentation for a compatible printer.
Printers:
RISO SC3500 RisoRinc
Have Disk...
< Back
Next >
Cancel

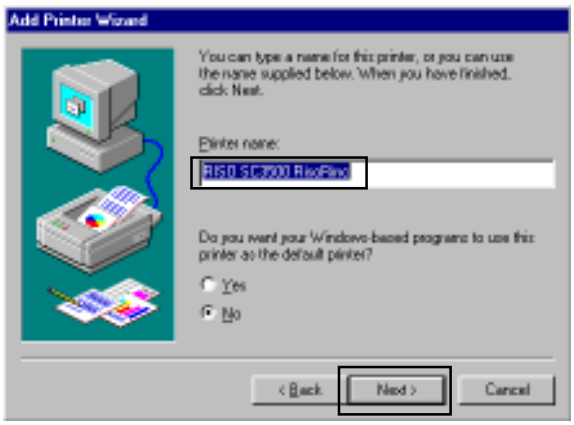
(FRSC95 inst09)

(M) Click on the **[Next]** button.


Add Printer Wizard
Click the port you want to use with this printer, and then click Next.
Available ports:
COM1: Communications Port
COM2: TDK Global Networker Modem
COM3: Generic IRDA Compatible Device
FILE: Creates a file on disk
LPT1: Printer Port
Configure Port...
< Back
Next >
Cancel

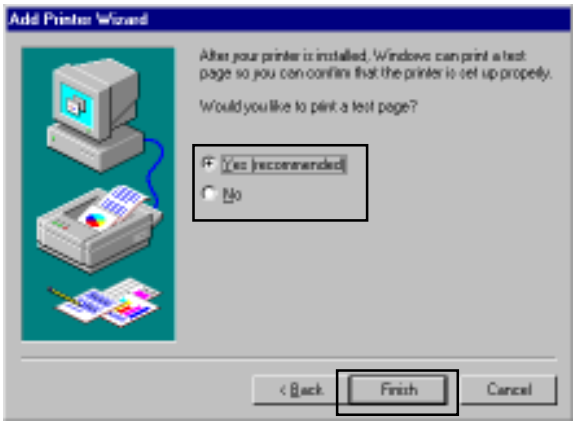
(FRSC95 inst10)

(N) **[RISO SC3500 RisoRinc]** appears in the Printers name box.
Then click on the **[Next]** button.


Add Printer Wizard
You can type a name for this printer, or you can use the name supplied below. When you have finished, click Next.
Printer name:
RISO SC3500 RisoRinc
Do you want your Windows-based programs to use this printer as the default printer?
Yes
No
< Back
Next >
Cancel

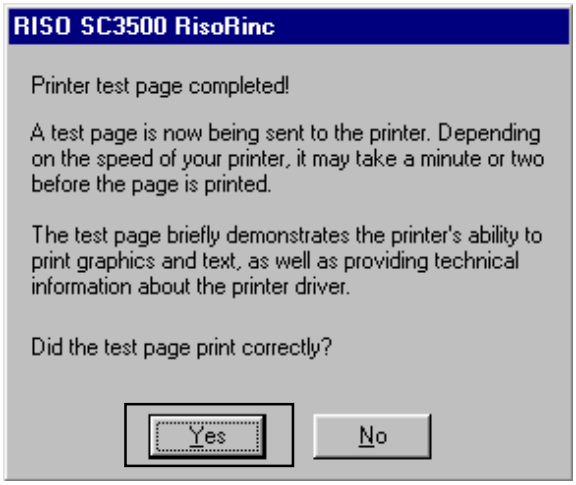
(FRSC95 inst11)

(O) If you need to have a test print of Windows 95 printer settings, click on the **[Finish]** button.


Add Printer Wizard
After your printer is installed, Windows can print a test page so you can confirm that the printer is set up properly.
Would you like to print a test page?
Yes (recommended)
No
< Back
Finish
Cancel

(FRSC95 inst12)

(P) If the test print of Windows 95 printer settings comes out correctly from the printer, click on the **[Yes]** button.


RISO SC3500 RisoRinc
Printer test page completed!
A test page is now being sent to the printer. Depending on the speed of your printer, it may take a minute or two before the page is printed.
The test page briefly demonstrates the printer's ability to print graphics and text, as well as providing technical information about the printer driver.
Did the test page print correctly?
Yes
No

(FRSC95 inst13)

(Q) **[RISO SC3500 RisoRinc]** appears in the **[Printers]** box, installation finished.

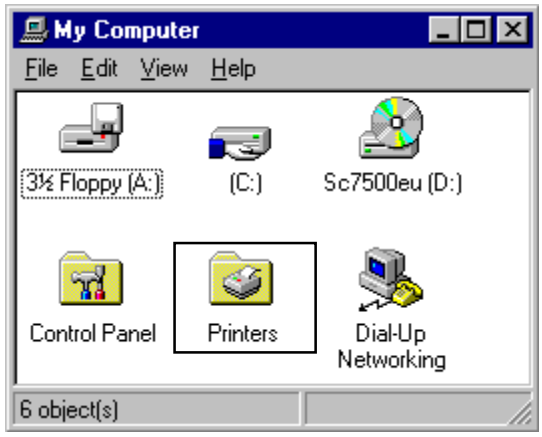
(FRSC95 inst14)

3-3. Windows NT4.0

(A) Turn on the personal computer and start Windows NT 4.0.
Insert the software CD-ROM in the CD-ROM drive.

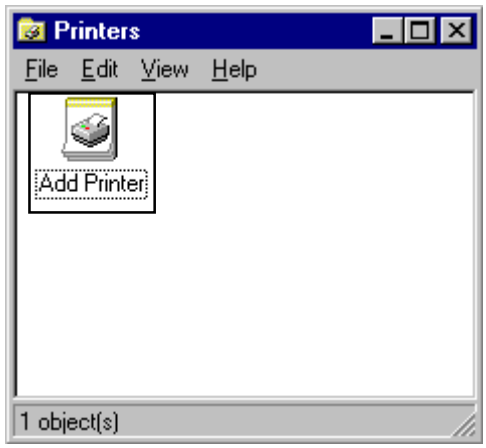
(B) Open the **[My Computer]**.

(C) Double-click on the **[Printers]** icon.



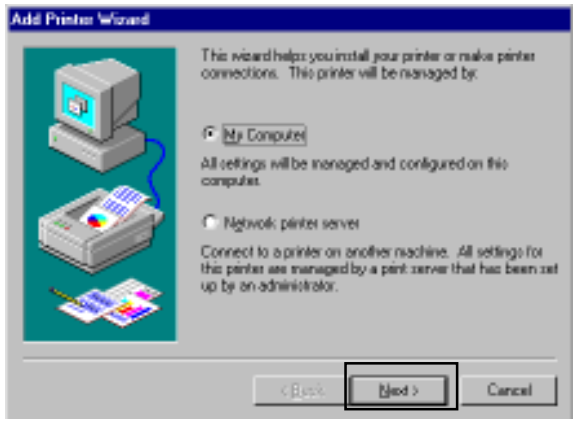
(FRSCNT inst01)

(D) Double-click on the **[Add Printer]** icon.



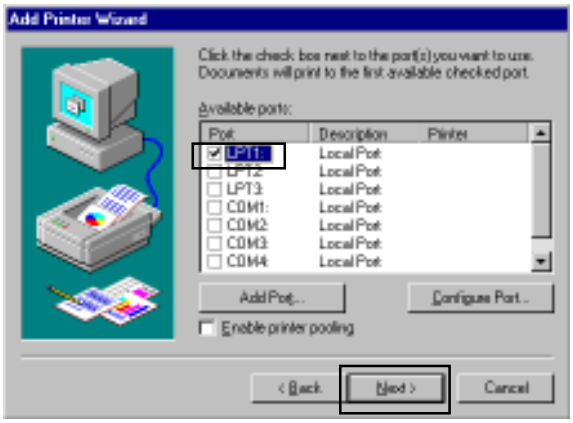
(FRSCNT inst02

(E) If you install SC unit as local printer, click on the **[Next]** button.


Add Printer Wizard
This wizard helps you install your printer or make printer connections. This printer will be managed by:
My Computer
All settings will be managed and configured on this computer.
Network printer server
Connect to a printer on another machine. All settings for this printer are managed by a print server that has been set up by an administrator.
< Back
Next >
Cancel

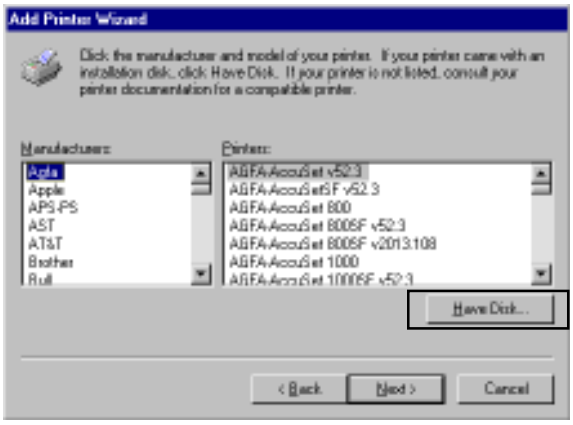
(FRSCNT inst03)

(F) Mark in the "LPT1" port (Suggest port) column, then click on the **[Next]** button.



(FRSCNT inst04)

(G) Click on the **[Have Disk...]** button.

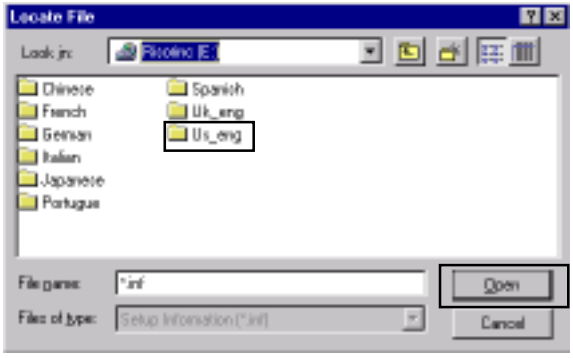


(FRSCNT inst05)

(H) **[Install From Disk]** dialog box appears. Click on the **[OK]** button.

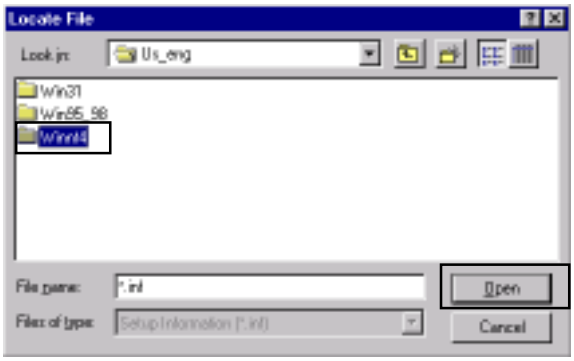
(FRSCNT inst06)

(I) Select the **[Us_eng] folder** then click on the **[Open]** button.



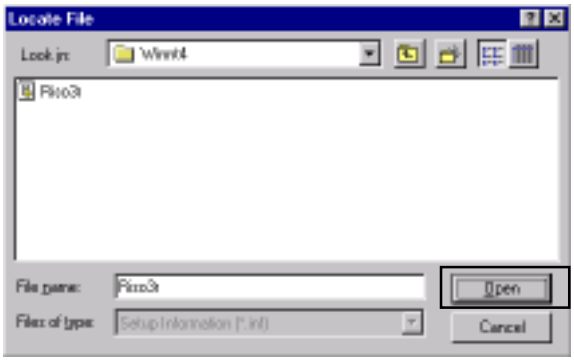
(FRSCNT inst07)

(J) Click on the **[Open]** button.



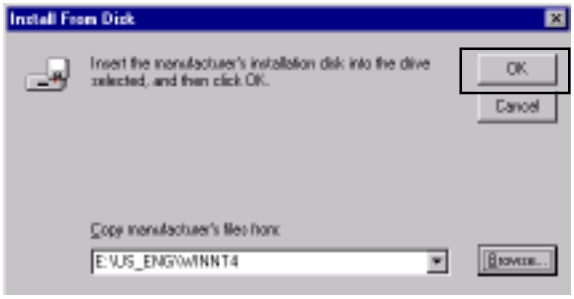
(FRSCNT inst08)

(K) Click on the **[Open]** button.



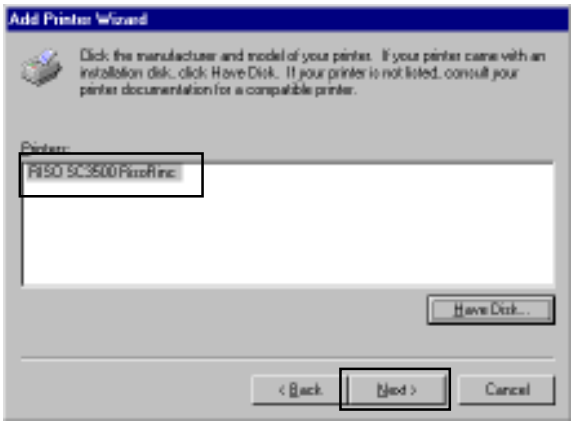
(FRSCNT inst09)

(L) Click on the **[OK]** button.



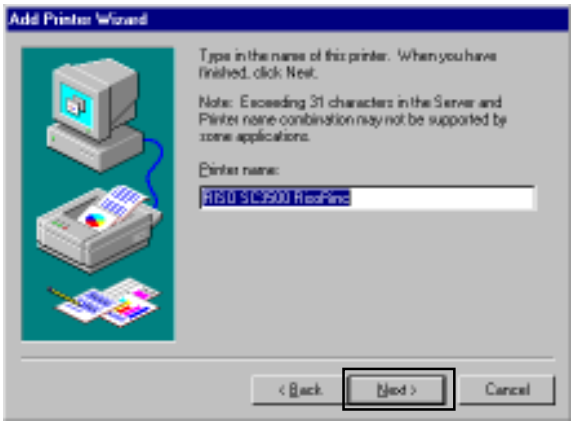
(FRSCNT inst10)

(M) **[RISO SC3500 RisoRinc]** appears in the Printers column.
Then click on the **[Next]** button.


Add Printer Wizard
Click the manufacturer and model of your printer. If your printer came with an installation disk, click Have Disk. If your printer is not listed, consult your printer documentation for a compatible printer.
Printers:
RISO SC3500 RisoRinc
Have Disk...
< Back
Next >
Cancel

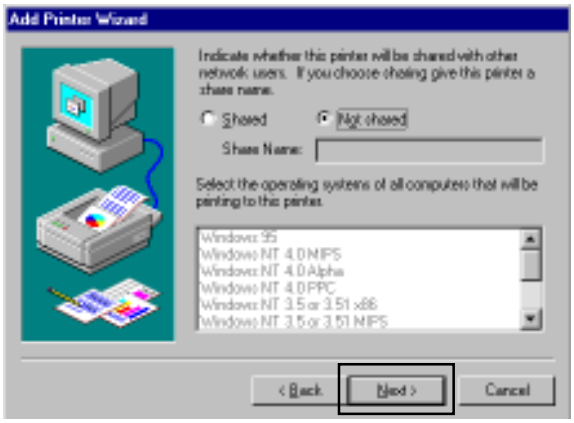
(FRSCNT inst11)

(N) **[RISO SC3500 RisoRinc]** appears in the Printer name.
Then click on the **[Next]** button.


Add Printer Wizard
Type in the name of this printer. When you have finished, click Next.
Note: Exceeding 31 characters in the Server and Printer name combination may not be supported by some applications.
Printer name:
RISO SC3500 RisoRinc
< Back
Next >
Cancel

(FRSCNT inst12)

(O) Click on the **[Next]** button.


Add Printer Wizard
Indicate whether this printer will be shared with other network users. If you choose sharing, give this printer a share name.
Shared
Not shared
Share Name:
Select the operating systems of all computers that will be printing to this printer.
Windows 95
Windows NT 4.0 MIPS
Windows NT 4.0 Alpha
Windows NT 4.0 PPC
Windows NT 3.5 or 3.51 x86
Windows NT 3.5 or 3.51 MIPS
< Back
Next >
Cancel

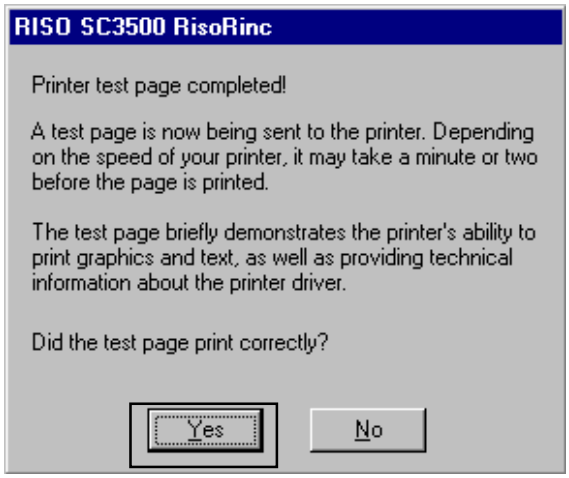
(FRSCNT inst13)

(P) Click on the **[Finish]** button.

Add Printer Wizard
After your printer is installed, you can print a test page so you can confirm that the printer is set up properly.
Would you like to print a test page?
Yes (recommended)
No
< Back
Finish
Cancel

(FRSCNT inst14)

(Q) If the test print of Windows NT printer settings comes out correctly from the printer, click on the **[Yes]** button.


RISO SC3500 RisoRinc
Printer test page completed!
A test page is now being sent to the printer. Depending on the speed of your printer, it may take a minute or two before the page is printed.
The test page briefly demonstrates the printer's ability to print graphics and text, as well as providing technical information about the printer driver.
Did the test page print correctly?
Yes
No

(FRSCNT inst15)

(R) **[RISO SC3500 RisoRinc]** appears in the **[Printers]** box, installation finished.

(FRSCNT inst16)

4. FIRMWARE PROGRAM

4-1. Firmware Program Version Check

The version number of the firmware program can be checked in three different ways, according to the difference of the version number itself, as given below.

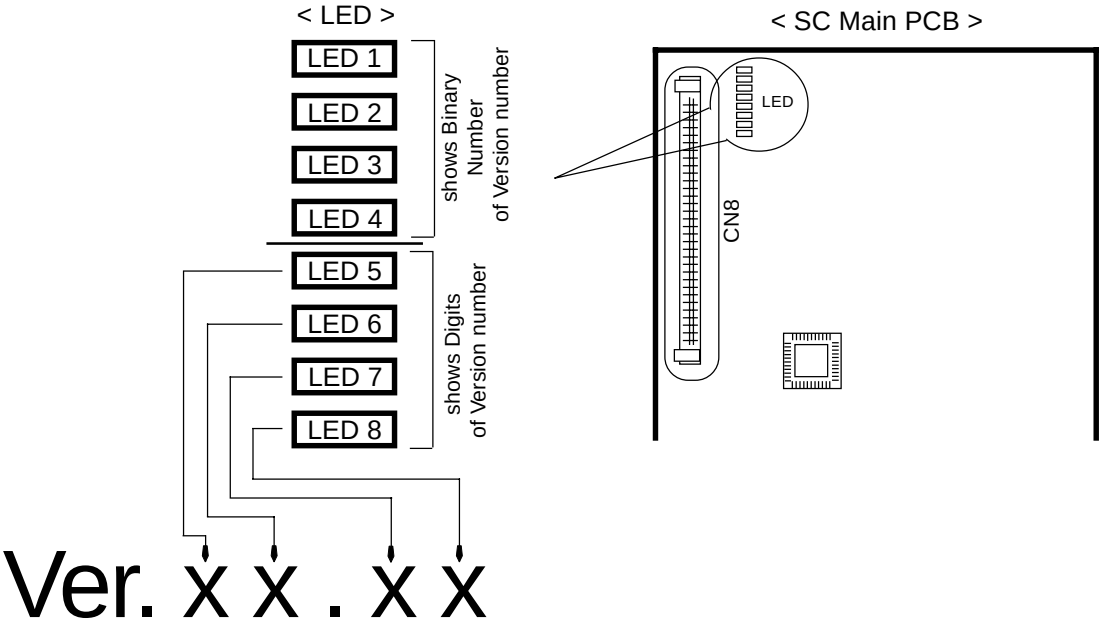
1) The firmware version number was shown on Test Print (Please refer "Trouble Shooting Tips 5-1") for the detail.

2) Check the version number by 8 LED's on the SC Main PCB

- **When the version number is "3.11" ;**

  1) Turn off the Main power and remove the Front Left cover of FR3950α.

  2) Check the illumination sequence of the green LEDs on the SC Main PCB when turning on the SC power.



LED 1 to LED 4

Indicate the numeric value of the version number by the 4-digit binary system.

LED 5 to LED 8

Indicate the digit place of the version number. For example, LED 8 as 2nd digit below the decimal point.

[Example. : LED illumination sequence when the version number is "3.11"]

Sequence	Version No.	LED1	LED2	LED3	LED4	LED5	LED6	LED7	LED8	Version Digit Place
1st	0	OFF	OFF	OFF	OFF	**ON**	OFF	OFF	OFF	2nd place over decimal
2nd	3	**ON**	**ON**	OFF	OFF	OFF	**ON**	OFF	OFF	1st place over decimal
3rd	1	**ON**	OFF	OFF	OFF	OFF	OFF	**ON**	OFF	1st place below decimal
4th	1	**ON**	OFF	OFF	OFF	OFF	OFF	OFF	**ON**	2nd place below decimal

3) Check the version number by 3 LED's on the SC Panel

- **When the version number is "3.11" ;**

1) Turn on the SC power, pressing down the FUNCTION button on the SC panel, and keep it pressed down untill all 3 LED's on the SC panel start flashing.

2) Release the FUNCTION button. The indicators flashes three times and then indicate the version number through their illumination.

3) The first illumination combination of the indicators indicate the 1st over-zero digit of the version number.

4) Press the FUNCTION button again. Next, they indicate the 1st below-zero digit of the same version number.

5) When the FUNCTION button is pressed the third time, then, the 2nd below-zero digit of the number is indicated by them.

6) If the FUNCTION button is pressed once more at this stage, the version number can be checked again from the 1st over-zero digit, as described in the step 3 above.

< Indicator Illumination Table>

Number	ERROR	READY/DATA	PAGE STANDBY
0	OFF	OFF	OFF
1	OFF	OFF	**ON**
2	OFF	**ON**	OFF
3	OFF	**ON**	**ON**
4	**ON**	OFF	OFF
5	**ON**	OFF	**ON**
6	**ON**	**ON**	OFF
7	**ON**	**ON**	**ON**

4-2. Firmware Program Upgrading

The firmware program which controls the operation of the FR3950α SC Controller is stored in the Flash memory on the SC Main PCB inside. This program can be upgraded by downloading a new (upgraded) one, which will be supplied it when required, from the personal computer.

1) Upgrading on Windows 3.1

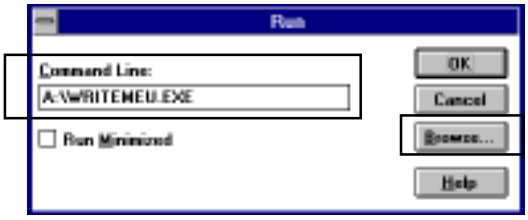
(1) Confirm the FR3950α SC Controller is securely connected to the personal computer which is to be used for program upgrading procedure.
(2) Turn on the FR3950α SC Controller, pressing down the STOP button and the FUNCTION button on the SC panel together, and keep them pressed down until all 3 indicators on the SC panel are illuminated and then the ERROR indicator (orange) goes off among them. Release the buttons.
(3) Turn on the personal computer and start Windows 3.1.
(4) Insert the floppy disk which contains an upgraded firmware program into the floppy disk drive on the personal computer.

NOTE : We must have the utility software which downloads file data in the floppy disk.

(5) Click on [File] in the menu bar in the "Program Manager" window and then on [Run...] in the [File] menu. The [Run] dialog box then appears.

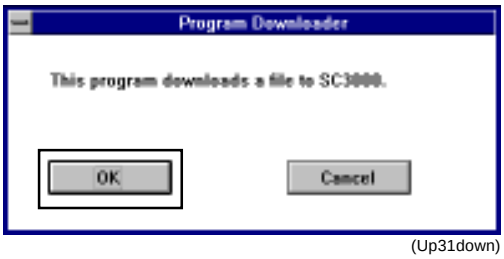
(Up31prom)

(6) Enter "a: \ writemeu.exe" into the [Command Line] box. (If the "C" drive is assigned as floppy disk drive, enter "c: \ writemeu.exe" into this box.)
The above-mentioned file name can be selected from the file name reference list which can be opened by clicking on the [Browse...] button in the [Run] dialog box.



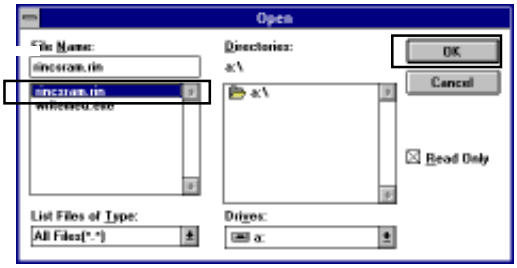
(Up31run)

(7) Confirm the entered file name is correct and click on the [OK] button.
The "downloader" program runs and then the [Program Downloader] dialog box appears.
(8) Click on the [OK] button in this dialog box.
The [Open] dialog box then appears.



(Up31down)

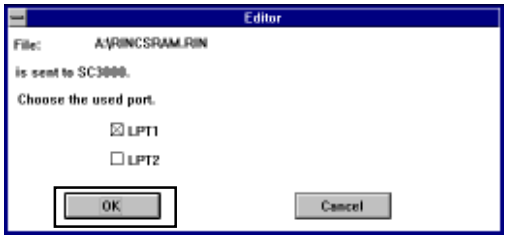
(9) Select "rincsram.rin" from the file name list in this dialog box. In "rincsram.rin", the upgraded firmware program is contained.
(If this file name isn't displayed in the file name list, select "All Files (*.*)" from the [List Files of Type] box in this dialog box.)
(10) Confirm "rincsram.rin" is displayed in the [File Name] box and click on the [OK] button in this dialog box.
The [Editor] dialog box then appears.



(Up31open)

(11)Select the port to which the FR3950α SC Controll is connected, normally "LPT1", and click on the [OK] button in this dialog box.

The message box "Downloading" appears while the READY/DATA indicator (green) on the SC panel is flashing.



(Up31edit)

(12)When it is confirmed the firmware program has been downloaded successfully into the FR3950α SC Controller, the READY/DATA indiactor stop flashing and the PAGE STANDBY indicator starts flashing, while the [Mini Editor] dialog box appears, informing the program has been successfully downloaded.

(Up31mied)

(13)Click on the [OK] button in this dialog box.

Turn off the FR3950α SC Controller and then remove the floppy disk from the floppy disk drive on the personal computer.

[NOTE]

- It is recommended that the version number of the installed firmware program be checked when it is upgraded.
- If the ERROR indicator (orange) is illuminated during the firmware program upgrading procedure, repeat the procedure from the beginning.

2). Upgrading on Windows 95/98

(1) Confirm the FR3950α SC Controller is securely connected to the personal computer which is to be used for program upgrading procedure.

(2) Turn on the FR3950α SC Controller, pressing down the STOP button and the FUNCTION button on the SC panel together, and keep them pressed down until all 3 indicators on the SC panel are illuminated and then the ERROR indicator (orange) goes off among them. Release the buttons.

(3) Turn on the personal computer and start Windows 95/98.

(4) Insert the floppy disk which contains an upgraded firmware program into the floppy disk drive on the personal computer.

NOTE : We must have the utility software which downloads file data in the floppy disk.

(5) Click on [Start] button in the Desk Top window and then on [Run...] in the menu. The [Run] dialog box then appears.

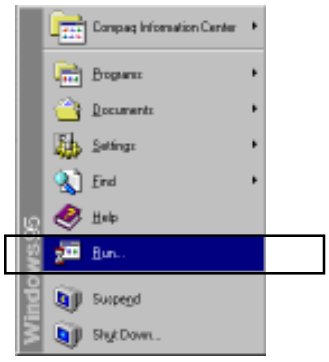
(6) Enter "A:\Writemeu.exe" into the box. (If the "C" drive is assigned as floppy disk drive, enter "C:\Writemeu.exe" into this box.)

The above-mentioned file name can be selected from the file name reference list which can be opened by clicking on the [Browse...] button in the [Run] dialog box.

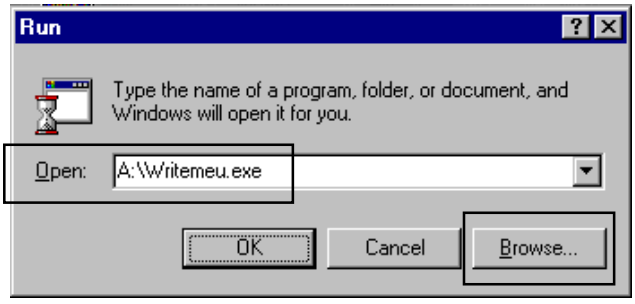
(7) Confirm the entered file name is correct and click on the [OK] button.

(8) Click on the [OK] button in the [Program Downloader] dialog box.

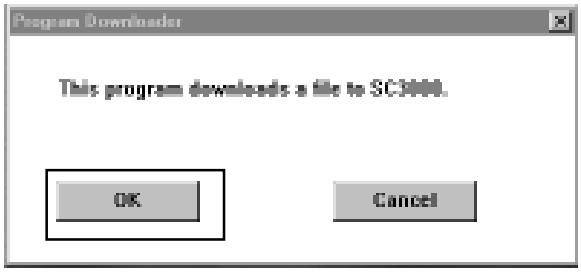
The [Open] dialog box then appears.



(run)



(rundial)

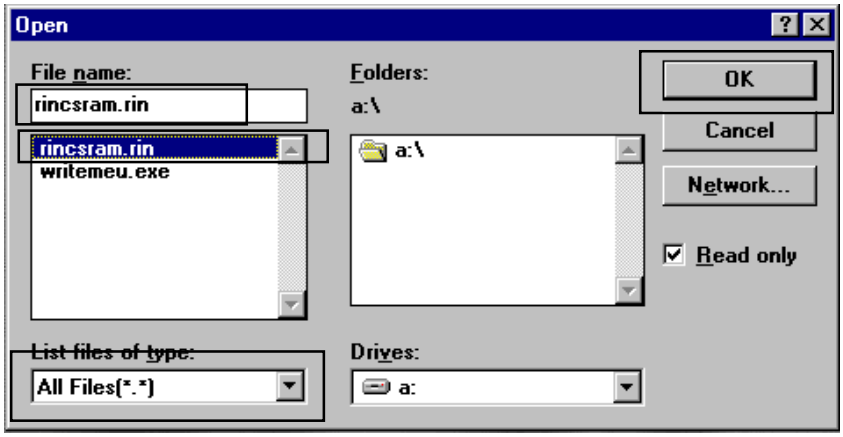


(Programdown)

(9) Select "rincsram.rin" from the file name list in this dialog box. In "rincsram.rin", the upgraded firmware program is contained.
(If this file name isn't displayed in the file name list, select "All Files(*.*)" from the [List files of type] box in this dialog box.)

(10) Confirm "riscram.rin" is displayed in the [File name] box and click on the [OK] button in this dialog box.

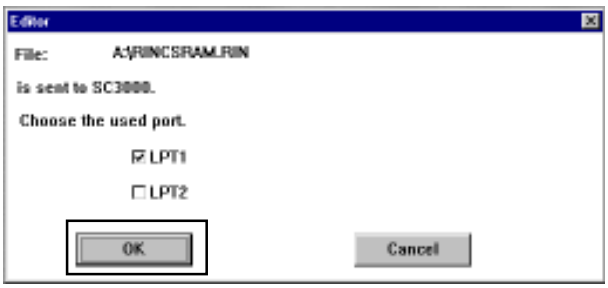
The [Editor] dialog box then appears.



(open)

(11) Select the port to which the **NOTE :** We must have the utility software which downloads file data in the floppy disk. is connected, normally "LPT1", and click on the [OK] button in this dialog box.

The message box "Downloading" appears while the READY/DATA indicator (green) on the SC panel is flashing.



(FRSC95 fup05)

(FRSC95 fup06)

(12) When it is confirmed the firmware program has been downloaded successfully into the FR3950α SC Controller, the READY/DATA indiactor stop flashing and the PAGE STANDBY indicator starts flashing, while the [Mini Editor] dialog box appears, informing the program has been successfully downloaded.

(13) Click on the [OK] button in this dialog box. Turn off the FR3950α SC Controller and then remove the floppy disk from the floppy disk drive on the personal computer.

[NOTE]

- It is recommended that the version number of the installed firmware program be checked when it is upgraded.
- If the ERROR indicator (orange) is illuminated during the firmware program upgrading procedure, repeat the procedure from the beginning.

3). Upgrading on MS-DOS

(1) Confirm the FR3950α SC Controller is securely connected to the personal computer which is to be used for program upgrading procedure.

(2) Turn on the FR3950α SC Controller, pressing down the STOP button and the FUNCTION button on the front panel together, and keep them pressed down until all 3 indicators on the front panel are illuminated and then the ERROR indicator (orange) goes off among them.

Release the buttons.

(3) Turn on the personal computer.

(4) Insert the floppy disk which contains an upgraded firmware program into the floppy disk drive on the personal computer.

NOTE : The utility software which downloads file data is also contained in this floppy disk.

(5) Change the current directory to the root directory of the floppy disk drive.

Ex. If the root directory of the floppy disk drive is the "A" drive;

1. Enter "A:" and Press the Enter key.
2. Enter "CD \" and Press the Enter key.

(6) Enter "SC3KU" and press the Enter key.

The following message is then displayed.

```
<<<<<< SC3000 / Program Transmission >>>>>> [ Ver. 1.00 ]
File Name = RINCSRAM. RIN
        READY? ( [ 0 ] : START, 1 : JOB END ) =
```

In "RINCSRAM. RIN", the upgraded firmware program is contained.

(7) Enter "0" and press the Enter key.

The upgraded firmware program then starts to be downloaded, while the displayed value of "Byte Count" keeps increasing and the READY/DATA indicator on the SC panel is flashing.

To interrupt this downloading operation, enter "1" and press Enter key.

(8) When it is confirmed the firmware program has been downloaded successfully into the FR3950α SC Controller, the READY/DATA indiactor stops flashing and the PAGE STANDBY indicator starts flashing, while the message "Completed ..... hit RETURN/ ENTER key!" appears at the bottom of the screen.
Press the Enter key. The following message then appears again.

```
<<<<<< SC3000 / Program Transmission >>>>>> [ Ver. 1.00 ]
File Name = RINCSRAM. RIN
        READY? ( [ 0 ] : START, 1 : JOB END ) =
```

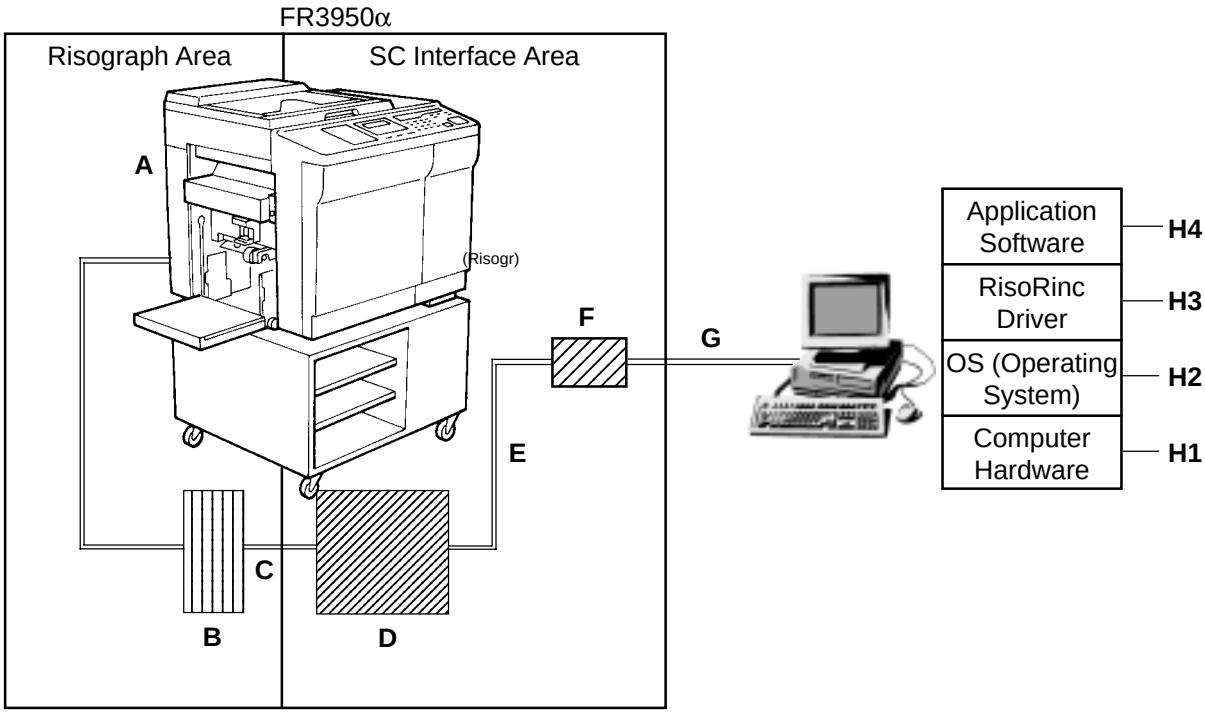
(9) Enter "1" and press the Enter key.
Turn off the FR3950α SC Controller and then remove the floppy disk from the floppy disk drive on the personal computer.

[NOTE]

- It is recommended that the version number of the installed firmware program be checked when it is upgraded.
- If the ERROR indicator (orange) is illuminated during the firmware program upgrading procedure, repeat the procedure from the beginning.

5. TROUBLE-SHOOTING TIPS

5-1. Isolating Fault Area



A Risograph Area

B Option PCB

C Inner Wire-Harness between Option PCB and SC Main PCB

D SC Interface Area (SC Main PCB, SC Power Supply PCB, etc.)

E Inner Wire-Harness between SC Main PCB and I/F-Port PCB

F I/F-Port PCB

G Printer Cable

H Computer System

- **H1** Computer hardware - printer port
- **H2** OS (Operating System)
- **H3** RisoRinc Printer Driver
- **H4** Application Software

Try to make tests which will eliminate areas as possible causes of any fault.
The following is a guide to checking the system by area.

1) **Area A (Risograph Area):**

- No power, No (Wrong) Print -

The Risograph may be tested on its own to determine if the Risograph is the cause of any print error.

Risograph Test Modes

The Risograph has several test modes for checking the stand-alone function of the print engine. Refer to the Risograph section of the Technical Manual.
If Area A is found to cause the fault repair the Risograph by referring to the Risograph section of the Technical Manual.

2) **Area B (Option PCB):**

- No (Wrong) Print -
Check following points.
> Connection of the connectors (CN1, CN2)
> Make sure that SW1 set to OFF (400dpi) position-Set as factory default

3) **Area C (Wire Harness between Option PCB and SC Main PCB):**

- No (Wrong) Print -
Check following points.
> Breakage of the Wire-Harness
> Make sure that correct Wire-Harness use (Must use Wire-Harness for Option PCB AIII)

4) **Area D (SC Interface Area):**

- No power, No display on SC Panel -
Check following points.
> SC Main Power SW2
> Connection of the connectors
- SC Main PCB (CN3, CN6)
- Power Supply PCB; SC3K (CN1, CN2)
- SC Panel PCB (CN2, CN3)
- SC LCD Panel
> Breakage of the Wire-Harness
- SC Power SW - SC Power Supply PCB
- SC Power Supply PCB - SC Main PCB
- SC Main PCB - SC Panel PCB
- SC Panel PCB - SC LCD Panel
> Fuse (F11) on the SC Power Supply PCB
> SC Power Supply PCB
> SC Panel PCB
> SC Main PCB

4) **Area D (SC Interface Area):** - continue from previous page -

- No CPU fan running -
Check following points.
> Connection of the connector
- SC Main PCB (CN5)
> Breakage of the Wire-Harness
- SC Main PCB - CPU fan
> CPU fan
> SC Main PCB

- No (Wrong) Print -
Check following points.
> Connection of the connectors
- SC Main PCB (CN3, CN4)
> SC Main PCB

5) **Area E (Wire Harness between SC Main PCB and I/F-Port PCB):**

- No (Wrong) Print -
Check following points.
> Breakage of the Wire-Harness

6) **Area F (I/F-Port PCB):**

- No (Wrong) Print -
Check following points.
> Connection of the connector
- I/F Port PCB (CN3)
> IF-Port PCB

- No (Wrong) Print through Parallel Port -
Check following points.
> Connection of the connector
- I/F Port PCB (CN1)
> IF-Port PCB

- No (Wrong) Print through Mac Serial Port -
Check following points.
> Connection of the connector
- I/F Port PCB (CN2)
> IF-Port PCB

Please make Self Test Print without connect the computer before goes to further area.
(Please refer 5-2. to make Self Test Print)
If you got correct Self Test Print without connect the computer, please move to Area G.

7) **Area G (Printer Cable):**

- No (Wrong) Print through Parallel Port -
Check following points.
> Breakage of the parallel cable
> Make sure correct parallel cable uses (Less than 2m long)
> Connection of the connectors (Both sides)

- No (Wrong) Print through Mac Serial Port -
Check following points.
> Breakage of the Mac serial cable
> Breakage of the LocalTalk cable
> Make sure correct LocalTalk cable uses (Use the Mac Genuine cable)
> Connection of the connectors (Both sides)

8) **Area H1 (Computer Hardware):**

- No (Wrong) Print -
Check following points.
> Print from other printer if available to ensure the computer itself is good working condition
> Normal Printer Port must be selected (Not ECP, EPP nor other Enhanced port) - IBM PC or compatible
> Minimum requirement hardware installed

9) **Area H2 (OS):**

- No (Wrong) Print -
Check following points.

IBM PC or Compatible
> Make sure that correct kind or version of Operation System installed in PC
> Normal Printer Port must be selected (Not ECP, EPP nor other Enhanced port)

Apple Macintosh
> Make sure that correct version of Operation System installed in Macintosh
> QuickDraw (Not QuickDraw GX) must be installed in Macintosh

10) **Area H3 (RisoRinc Printer Driver):**

- No (Wrong) Print -
Check following points.

IBM PC or Compatible
> Make sure that the Printer Driver installed in the PC which compatible with the Operation System

11) **Area H4 (Application Software):**

- No (Wrong) Print -

Check following points.

> Correct Printer selected for the print

> Make sure "Collate Copies" column in the Print dialog box is **unmarked**.
PageMaker, MS-Word, etc.

> Correct resolution (400 x 400dpi) must be selected in the SC3000 series Printer Setting Dialog box.

5-2. Test Print

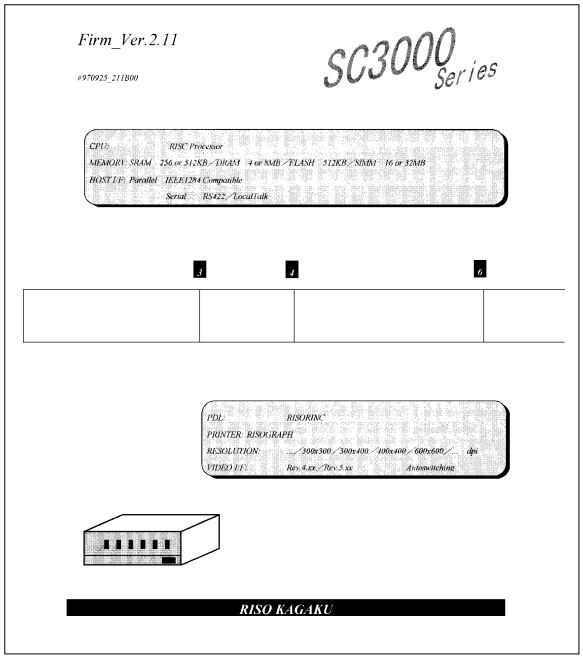
The SC Controller in the FR3950α forwards the internally equipped image data to FR3950α directly, and does the Master-making and Printing.
When an error occurs, we can judge from this Test Print whether or not the FR3950α Risograph area is in a normal condition.
If the test prints come out correctly, the FR3950α Risograph area is in a good condition.
The Test Print image is in A4 size.

Procedures for the Test Print

1) Pressing the "START" key of the SC Panel, turn ON the power of the FR3950α , and keep the "START" key pressed until the "ERROR" and "PAGE STANDBY" LEDs goes off.

2) The "READY" LED lights up while the Test Print image data within the SC Main PCB is being processed.

3) "TEST-DATA PROCESSING" will appears on LCD when the Test Print data processing is completed. The Risograph area starts the Master-making, followed by a proof print and the first print.


Firm_Ver.2.11
#970925_211B00
SC3000 Series
CPU: RISC Processor
MEMORY: SRAM 256 or 512KB / DRAM 4 or 8MB / FLASH 512KB / SIMM 16 or 32MB
HOST I/F: Parallel IEEE1284 Compatible
Serial RS422 / LocalTalk
PDL: RISORINC
PRINTER RISOGRAPH
RESOLUTION: 300x300 / 300x400 / 400x400 / 600x600 / dpi
VIDEO I/F: Rev.4.xx / Rev.5.xx Antoswitching
RISO KAGAKU

Important Notice:

>A model name FR3950α not shown on the Test Print.
It shows SC3000 series instead.
>The Test Print image may change without notice.

5-3. Error Indicator on SC Panel

5-3-1. The READY/DATA indicator doesn't flash even after the print job finishes in the application software.

CAUSE
The SC Controller cannot receive print data from a personal computer.

1) The printer cable is not securely connected between the SC Controller and the personal computer.
2) The personal computer's system is not set up for the SC Controller, e.g. the [RisoRinc SC3500] printer driver is not selected for the print job in question.
3) The page memory of the SC Controller is filled with the preceding print data and has no space for the print data in question.

Wait until the print data filling the page memory is output from the SC Controller to the Risograph.

5-3-2. The READY/DATA indicator keeps on flashing slowly without any printer's operation even after the print job finishes in the application software.

CAUSE
The SC Controller cannot output the print data received from a personal computer to the Risograph while the latter is ready to receive it from the former.

1) The printer cable or LocalTalk cable was removed just after a print job started in the application software. [Printing] is displayed in the Print Manager or "Print queue" dialog box in this case.
   Connect the printer cable or LocalTalk cable and cancel the current print job in the Print Manager or "Print queue" dialog box. Then turn off the SC Controller.
2) The print job was suspended by the personal computer's system. [Pause] or [Hold] is displayed as printer status in the Print Manager or "Print queue" dialog box.
   Select the file name in question and click on the [Restart] button in the Print Manager or the [Resume] button in the "Print queue" dialog box to resume the suspended print job.
3) The print job may have been canceled on the way in the application software on the personal computer.
   Turn off the SC Controller.
4) The printer settings (paper size, print orientation, printer driver, etc.) in the application software don't match those in the SC printer driver, i.e. the [RISO SC3000 Setup] dialog box. < only on the Windows 3.1 platform >
   Change the printer settings in the application software to make them identical with those in the printer driver or vice versa, and repeat the print job in question from the application software.

5-3-3. A print job has been suspended and the PAGE STANDBY indicator is flashing.

CAUSE

A "Pause" command was recognized in the SC Controller during the print job and the SC Controller is requesting an instruction on what to do next.
Press one of the following buttons to resume operation according to the suspended condition
: START button (or I/F key on the Risograph), STOP button or FUNCTION button.

5-3-4. Page image is not centered or is clipped at an edge.

CAUSE

The print condition settings are not correct.

1) The paper size setting in the application software or the [Page Setup] dialog box is not identical with the actual paper size on the Risograph.
2) The paper feed direction setting in the [Options] or [Page Setup] dialog box doesn't match the actual one on the Risograph.

6. DISASSEMBLY AND RE-ASSEMBLY

6-1. SC Main PCB

6-1-1. Turn OFF the power
6-1-2. Unplug the AC Power Cord
6-1-3. Open the Front Cover
6-1-4. Remove 2 Pan Head Screw (6x8) from the Front Cover Lower Hinge (Fig.1)
6-1-5. Remove Front Cover Lower Hinge
6-1-6. Remove Front Cover

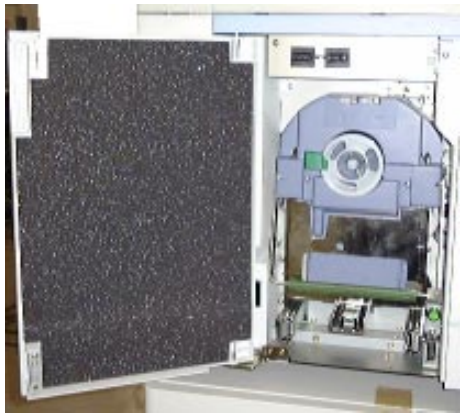


Fig.1

6-1-7. Remove 2 Binding Head Screw (8x8) from the Front Left Cover (Fig.2)

Fig.2

6-1-8. Remove 2 Binding Head Screw (8x8) from the Front Left Cover (Fig.3)

6-1-9. Remove Front Left Cover

Fig.3

6-1-10. Remove 5 Binding Head Screw (6x5) from both sides of the Front Left Cover (Fig.4)
6-1-11. Disconnect CPU cooler connector from the SC Mian PCB.
6-1-12. Remove SC Unit Cover

Fig.4

6-1-13. Disconnect connectors (CN1, CN3, CN4,CN6) from the SC Main PCB. (Fig.5)
6-1-14. Remove 7 Binding Head Screw (6x5) from the SC Main PCB. (Fig.5)
6-1-15. Remove the SC Main PCB

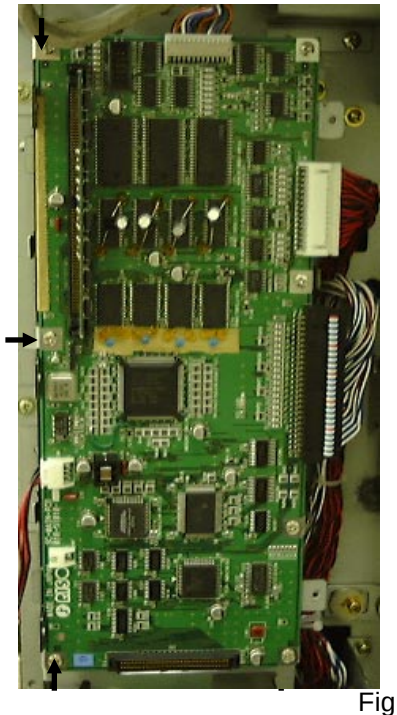


Fig.5

6-2. SC Power Supply PCB

6-2-1. Take same procedure has been showed on 6-1-1 through 6-1-9
6-2-2. Disconnect connectors (CN1, CN2) from the SC Power Supply PCB. (Fig.6)
6-2-3. Remove 2 Binding Head Screw (6x5) from the SC Power Supply PCB. (Fig.6)
6-2-4. Remove the SC Power Supply PCB

Fig.6

6-3. I/F-Port PCB

6-3-1. Turn OFF the power
6-3-2. Unplug the AC Power Cord
6-3-3. Remove 5 Binding Head Screw (8x8) from the Back Cover (Fig.7)

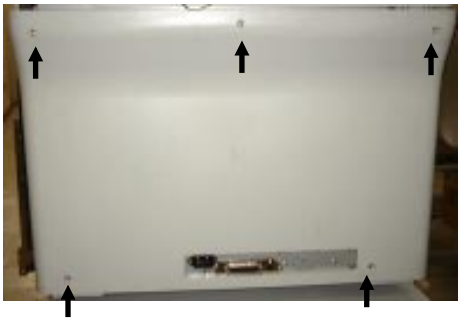


Fig.7

6-3-4. Remove 2 Pan Head Screw (6x8) from the Mount (Fig.8)

6-3-5. Remove the Mount
6-3-6. Remove 2 Binding Head Screw (6x5) from the Mount (Fig.8)
6-3-7. Disconnct the connector CN3 (Fig.9)
6-3-8. Remove the I/F-Port PCB

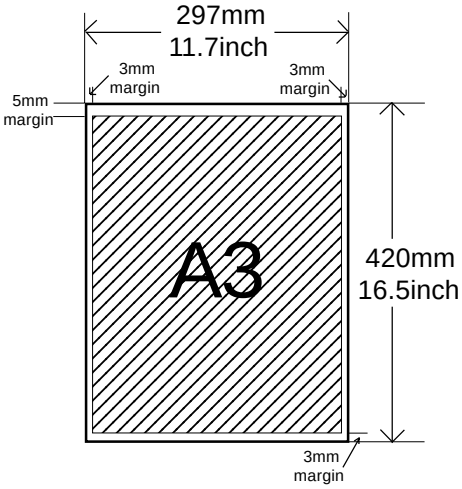
Fig.8

Fig.9

7. APPENDIX (SC SECTION)

7-1. Theory of Data Processing

The SC Contoroller is equiped standard with a 8MB RAM as a Page data memory, which can be expanded to maximum 40MB.
8MB RAM will be able to process two A3 size page (400dpi).



A full A3 size 400dpi image equals to 29,808,000 dots(bit).

Which is equal to
(11.5inch X 400dpi) X (16.2inch X 400dpi) = 29,808,000
[No count for the area of margin]

Since
8 bit = 1 byte,

29,808,000 bit / 8 / 1,024= 3,638kbyte / 1,024 = 3.55MB

If A4 (400dpi) is selected as the paper size, the A4 (400dpi) size area is half that of the A3 (400dpi) size, so four A4 (400dpi) pages can be processed in one operation.
Which means, "Four allocated pages".
If A5 (400dpi) is selected as the paper size, the allocate pages are nine.

The page memory data is processed within SC Controller when the data is first sent to SC Controller from the Print Manager of the Computer.
(The paper size information is the first data on the data transmitted, the allocated page quantity is the first item to be processed.)
The Master-making on the Risograph starts when the data processing for one page is completed.
At the same time, the data processing of the second page will start if the allocated page quantity is two or more.
If the allocated page quantity is one, the data processing of the second page will not start until the Master-making is completed and the printing starts and the page memory is cleared.

Therefore, the smaller the paper size, or larger the memory(RAM) size, the faster the data transfer is from the computer to SC Controller, and will be an advantage if the page data file is in several pages.

Since SC Controller does not start processing the next file until the Master-making and printing of the present file is completed, even though a print command is given for two or more files and the first file is not using the full allocated page memory.

7-2. CD-ROM File Contents

7-2-1. Contents of RisoRinc CD-ROM Ver.1.0 (Macintosh)

FRENCH
...
GERMAN
...
ITALIAN
...
JAPANESE
...
SPANISH
...
UK_ENG
-SC3500 paper Editor(U)
-SC3500 RisoRinc QD(A.T)U
-SC3500 RisoRinc QD(U)
US_ENG
...

7-2-2. Contents of RisoRinc CD-ROM Ver.1.0 (Windows)

Chinese
...
French
...
German
...
Italian
...
Japanese
...
Portugal
...
Spanish
...
Uk_eng
-Win31
Oemsetup.inf
Riso3r.hlp
-Win95_98
Riso3r.hlp
Risodrv.inf
-Winnt4
Riso3r.dl_
Riso3r.inf
Riso3rui.dl_
Riso3rui.hl_
Sc3rmon.dl_
Us_eng
...

7-3. Description of SC Panel LED

These three LEDs indicates the current status of FR3950α.

ERROR	This LED indicates error on the Risograph.
READY/DATA	This LED indicates the data receiving condition from the computer.
PAGE STANDBY	This LED indicates the completion of 1 page data processing. Also this LED indicates that the unit is in stand by mode waiting for the next command.

LED / STATUS	ERROR (Orange)	READY/DATA (Green)	PAGE STANDBY (Yellow)
> Immediately after the Power turned ON	ON	ON	ON
> Ready for operation (Waiting for the data)	OFF	ON	OFF
> Data processing in progress (Receiving the data)	OFF	Flashing (Fast)	OFF
> Data processing in progress (No data receiving)	OFF	Flashing (Slow)	OFF
> Page data completed	—	—	ON
> No error on Risograph	OFF	—	—
> An error on Risograph (Jam error, Service call, etc.)	ON	—	—
> No power on the Risograph > Try to make interface ON during Risograph busy condition > Communication error between SC and Risograph areas	Flashing	—	—
> Waiting for next operation command	OFF	—	Flashing

— : Depends on each conditions

7-4. Description of SC Power Select Switch and SC Panel Button

7-4-1. SC Power Select Switch

A function of SC Power Select Switch is changing status of the SC Power.

SC Power Select Switch Position	Status of the Power
SW1	Rely on Main Power SW Main Power ON - SC Power ON Main Power OFF - SC Power OFF
⏽	SC Power always ON Main Power OFF but SC Power stays ON

7-4-2. SC Panel Button (Normal Mode)

Function of five SC Panel Buttons are follows.

CONDITION / BUTTON	Menu Mode	Ready Mode	Page Selection Mode
STOP Button	Abort the Menu Mode	Interrupt AUTO mode (Make-master or Print) Interrupt Printing job Skip Print on Manual Print Mode Interrupt Re-starting after Error Recovery	
START Button	Save set items or modified items data into SC Controller (push twice)	Start prints on Manual Print Mode Re-start after Error Recovery	Proceed Make-master and Prints on selected page
FUNCTION Button	Goes into Modification of set items	Goes into the Menu Mode Re-Make master on Manual Print Mode	
FUNCTION +STOP Buttons			Deletes all processed pages in the page memory
FUNCTION +START Buttons			Make-master and Print all processed pages in the page memory